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10/619,886

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Stephen R. Carter

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EXAMINER

DOAN, DUYEN MY

ART UNIT

PAPER NUMBER

2152

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|---|--|
| Office Action Summary | Application No. 10/619,886 | Applicant(s) CARTER, STEPHEN R. | |
| | Examiner DUYEN M. DOAN | Art Unit 2152 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 21-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 21-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>5/20/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is in response to the submission filed on 5/20/2008. Claims 1-19,21-25 are amended for examination. Claim 20 is cancelled.

Response to Arguments

Applicant's arguments filed 5/20/2008 with respect to the 112 and 101 rejections have been fully considered and are persuasive. The 112 and 101 rejections are withdrawn.

Applicant's arguments filed 5/20/2008 with respect to the 103 rejections have been fully considered and are not persuasive.

Applicant argued that the prior art does not teach, "no path determination is done at the intermediate node" Examiner respectfully disagrees, Cain discloses invention regard to using an alternate routes if the preferred route is unavailable due to a failure of nodes in the network. Cain further discloses each node in the network (this could be the entry node such as node A or node B, C or D as shown in figure 1) determines various routes to the other nodes in the network, selecting an alternate path if the primary path is failed (see Cain col.4, lines 12-45). Ash further teaches evaluating policy at each router shown in figure 1 of Ash (see figure 1 and col.5, lines 41-55).

Applicant argued that Cain reference does not teach, "path resolution is in response to policy evaluation" Examiner disagrees, Cain discloses Cain discloses

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invention regard to using an alternate routes if the preferred route is unavailable due to a failure of nodes in the network (i.e. path resolution). Cain concern with determining alternate route if the primary route is unavailable due to a failure of nodes, however, Cain does not mention of using policy evaluation, to make up the deficiency of Cain, Ash teaches policy evaluation for routing data in the network. One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cain (us pat 6,857,026) in view of Ash et al (us pat 6,590,867) (hereinafter Ash).

As regarding claim 1, Cain discloses a method for dynamically routing a data packet through a Content Distribution Network (CDN), comprising:

receiving a routing table for a CDN (see Cain col.1, lines 66-67; col.2, lines 1-2, install multiple routes in the routing table, the routing table is inherently receive by the node originally) and a data packet (see Cain col.2, lines 2-3, receive the message), wherein the routing table represents a desired path and alternative paths through the CDN (see col.3, lines 15-20, preferred route and one or more alternate routes), and wherein each path represents links, between an entry node, intermediate nodes, and a destination node (see Cain figure.I, links 110, 116 etc.); at the entry node, and at each of the intermediate nodes

reordering currently available intermediate nodes within the routing table for the currently available links, when the policies are triggered by current conditions of the currently available intermediate nodes (see Cain co1.3, lines 38-49, re-prioritize the available routes in the routing table if a condition such as node failure occurs, the re-prioritizing available routes inherently re-prioritize available intermediate node since, the different routes may have different intermediate nodes); and

routing the data packet to a next available intermediate node of the routing table, wherein the next available intermediate node is one of the currently available intermediate nodes, and wherein at least one intermediate node selects the next available intermediate node that is associated with one of the alternative path (see Cain col.3, lines 45-49, route the message using alternate route; col.4, lines 12-45, selecting another route (alternate route) to route data if primary route fail).

Cain does not specifically teach evaluating policies associated with currently available links for currently available paths at the entry node or at one of the intermediate nodes, when the data packet is received on the entry node and when data packet is received on each of the intermediate nodes.

Ash teaches evaluating policies associated with currently available links for currently available paths at the entry node or at one of the intermediate nodes, when the data packet is received on the entry node and when data packet is received on each of the intermediate nodes (see Ash col.2, lines 65-67 to col.3, lines 1-5, receive the packets select routes based the load state of the links in the network; also see col.5, lines 15-23, lines 41-55 determining the links having the bandwidth capacity for the determine class of service, the recipient router such as router 12-1, to 12-3 using the same policy to determine the route in the network).

It would have been obvious to one with ordinary skill in the art at the time the invention was made to combine the teaching of Ash to the method of Cain to evaluating policies associated links for the purpose of satisfying the quality objectives for different grades of service (see Ash co1.1, lines 45-48).

As regarding claim 2, Cain-Ash discloses iterating the processing for evaluating, reordering, and routing at each intermediate node that receives the data packet until the data packet reaches the destination node (see Ash co1.3, lines 3-5, each subsequent router performs routing of packet).

As regarding claim 3, Cain-Ash discloses comparing policy threshold metrics to the currently available intermediate nodes' processing load levels for determining whether to trigger actions associated with the policy threshold metrics (see Ash co1.5, lines 15-23). The same motivation was utilized in claim 1 applied equally well to claim 3.

As regarding claim 4, Cain-Ash discloses processing one of the actions to promote or demote one or more of the currently available intermediate nodes within the routing table (see Cain co1.3, lines 38-49, re-prioritize the available routes in the routing table if a condition such as node failure occurs, the re-prioritizing available routes inherently re-prioritize available intermediate node since, the different routes may have different intermediate nodes).

As regarding claim 5, Cain-Ash discloses comparing policy priority metrics to the currently available intermediate nodes' data traffic for determining whether to trigger actions associated with the policy priority metrics (see Ash col.5, lines 15-23 checking the bandwidth capacity to see if it complies with the class of service). The same motivation was utilized in claim 1 applied equally well to claim 5.

As regarding claim 6, Cain-Ash discloses processing one of the actions for suspending existing traffic associated with one of the currently available nodes in order to accommodate the routing of the data packet based on the policy priority metrics associated with the data packet (see Cain col.3, lines 38-49, re-prioritize the available routes in the routing table if a condition such as node failure occurs).

As regarding claim 7, Cain-Ash discloses comparing policy bandwidth utilization metrics against existing bandwidth utilization levels associated with the currently available intermediate nodes for determining whether to trigger bandwidth utilization in order to load balance bandwidth use within the CDN (see Ash col.5, lines 15- 23 checking the bandwidth capacity to see if it complies with the class of service). The same motivation was utilized in claim 1 applied equally well to claim 7.

As regarding claim 8, the limitations of claim 8 are similar to limitations of rejected claim 1, therefore rejected for the same rationale.

As regarding claim 9, Cain-Ash discloses identifying the entry node as an initial receiving node (see Cain co1.2, lines 2-3, also see figure 1, node A).

As regarding claim 10, Cain-Ash discloses notifying by the receiving node, remaining intermediate nodes within the routing table for any reordering of the routing table that occurs (see Ash co1.3, lines 63-67 to col.4, lines 1-2, information flooded to every other router in the network)..The same motivation was utilized in claim 1 applied equally well to claim 10.

As regarding claim 11, Cain-Ash discloses using policies associated with at least one of next intermediate node bandwidth utilization levels, next intermediate node utilization levels, and next intermediate node traffic priority assignments (see Cain col.4, lines 20-25).

As regarding claim 12, Cain-Ash discloses assigning the policies to the links established between the nodes and forming the desired path and the one or more

alternative paths (see Ash col.5, lines 5-20). The same motivation was utilized in claim 1 applied equally well to claim 12.

As regarding claim 13, Cain-Ash discloses preventing previously demoted intermediate nodes from being promoted at the receiving node when reordering of the routing table occurs (see Cain col.3, lines 37-48).

As regarding claim 14, Cain-Ash discloses using a formal notation to update the routing table or the policies in order to identify the previously demoted intermediate nodes (see Cain col.3, lines 37-48).

As regarding claim 15, the limitations of claim 15 are similar to limitations of rejected claim 1, therefore rejected for the same rationale. Cain-Ash further discloses the system is processed by at least one of a cache accelerator, a router, a gateway, a firewall, a network hub, a network switch, a network bridge, or a customized application (see Ash fig.1, router 121-123). The same motivation was utilized in claim 1 applied equally well to claim 15.

As regarding claim 16, Cain-Ash discloses the policies configurable based on the CDN or a data type associated with the data packet (see Ash col.2, lines 34-48). The same motivation was utilized in claim 1 applied equally well to claim 16.

As regarding claims 17-19, the limitations of claims 17-19 are similar to limitations of claims 9-14, therefore rejected for the same rationale.

As regarding claim 21, the limitations of claim 21 are similar to limitations of rejected claim 1, therefore rejected for the same rationale. Cain-Ash further discloses at least one intermediate node changes routing of the data packet from the desired path to one of the alternative paths (see Cain col.4, lines 12-45) in response to processing the policies when that particular intermediate node receives the data packet (see Ash col.5, lines 41-55). The same motivation was utilized in claim 1 applied equally well to claim 21.

As regarding claim 22, Cain-Ash discloses if re-ordering of the routing table occurs at an entry node or a particular intermediate node, the reordering is not communicated to a receiving intermediate node (see Cain col.3, lines 37-48).

As regarding claim 23, Cain-Ash discloses wherein the policies are selected based on any reordering that previously occurred within the routing table (see Cain col.3, lines 37-48).

As regarding claim 24, Cain-Ash discloses using a formal notation is associated with and used to identify any reordered nodes, and the formal notation is used in either the routing table or the policies and is accessible to the entry node and the intermediate nodes (see Cain col.3, lines 37-48, mark entry in the routing table as unavailable).

As regarding claim 25 Cain-Ash discloses wherein the policies include metrics associated with at least one of bits per second currently being transmitted by currently available intermediate nodes, bits per second currently being received by the currently available intermediate nodes, current priority traffic assigned to currently available links

associated with the currently available intermediate nodes, and actions currently being processed on the currently available intermediate nodes (see Ash col.2, lines 37-43, bits per second). The same motivation was utilized in claim 1 applied equally well to claim 25.

Conclusion

Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DUYEN M. DOAN whose telephone number is (571)272-4226. The examiner can normally be reached on 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. M. D./
Examiner, Art Unit 2152

/Kenny S Lin/
Primary Examiner, Art Unit 2152